
कांटे — विशिष्टि

Forks — Specification

ICS 97.040.60

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FOREWORD

This Indian Standard was adopted by the Bureau of Indian Standards, after the draft finalized by the Utensils, Cutlery and Domestic Hardware Sectional Committee had been approved by the Mechanical Engineering Division Council.

In this amalgamated standard, the material has been modified keeping in view the availability of the indigenous materials and certain other changes which would help in implementing the Indian Standard in a better way.

This standard has been formulated by amalgamating IS 992 : 1964 'Specification for forks (table, fish, pastry and serving) stainless steel' and IS 993 : 1964 'Specification for forks (table, fish, pastry and serving) brass and nickel silver'. All these standards would be withdrawn after publication of this standard.

The composition of the Committee responsible for the formulation of this standard is given in Annex A.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

FORKS — SPECIFICATION

1 SCOPE

This standard covers the requirements for the following types of forks made from stainless steel and nickel silver plated with brass as a parent material with or without plastic handle:

- a) Table/Serving fork,
- b) Dessert fork,
- c) Fish fork, and
- d) Pastry fork.

2 REFERENCES

The following standards contain provisions which, through reference in this text, constitute provisions of this standard. At the time of publication the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below.

<i>IS No.</i>	<i>Title</i>
422 : 2006	Specification for brass sheet and strip for the manufacture of utensils (<i>second revision</i>)
695 : 2008	Specification for acetic acid
1067 : 2010	Electroplated coatings of silver for decorative and protective purposes (<i>second revision</i>)
1070 : 2008	Reagent grade water
1959 : 2010	Silver anodes for electroplating — Specification
4170 : 2006	Brass rods for general engineering purposes
4408 : 2010	Sodium chloride, analytical reagent
6911 : 2009	Stainless steel plate, sheet and strip (<i>first revision</i>)
15997 : 2012	Low nickel austenitic stainless steel sheet and strip for utensils and kitchen appliances — Specification

3 MATERIAL

Material for forks shall be as under.

3.1 SS 304 (*see* IS 6911), grades of IS 15997 or any food grade stainless steel.

3.2 Brass as parent material (*see* IS 422) and plated with pure silver as per IS 1959.

3.3 Plastic handle shall be free from deleterious substances, resist the action of diluted organic acids

and should not be inflammable as to burst into flames when a lightened match is applied to it.

4 SHAPES AND DIMENSIONS

4.1 The forks shall be manufactured in one piece either with solid handle forged or cast with prongs or pressed into shape. The forks may be manufactured also with hollow handle or with plastics handle. The design of the handles of forks shall be as agreed to between the manufacturer and the purchaser. When spoons, forks and knives are required to be supplied in sets, the design on the handles and general appearance of the item in a set shall match.

4.2 The fork shall conform to shapes and dimensions given in **4.3** to **4.8**, however the detailed specifications are left to the discretion of manufacturers and are subject to the agreement with the purchaser.

4.3 Table/Serving and Dessert Fork, Solid Handle (*see* Fig. 1 A)

4.4 Table/Serving and Dessert Fork, Pressed Handle (*see* Fig. 1 B)

4.5 Fish Fork, Solid Handle (*see* Fig. 2 A)

4.6 Fish Fork, Pressed Handle (*see* Fig. 2 B)

4.7 Pastry Fork, Solid Handle (*see* Fig. 3 A)

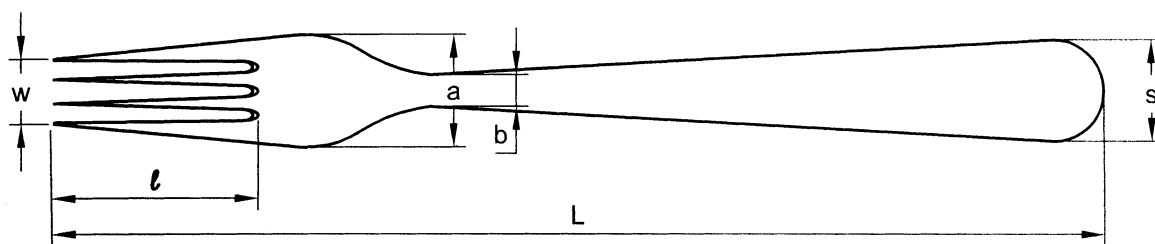
4.8 Pastry Fork, Pressed Handle (*see* Fig. 3 B)

4.9 Dimensional Tolerances

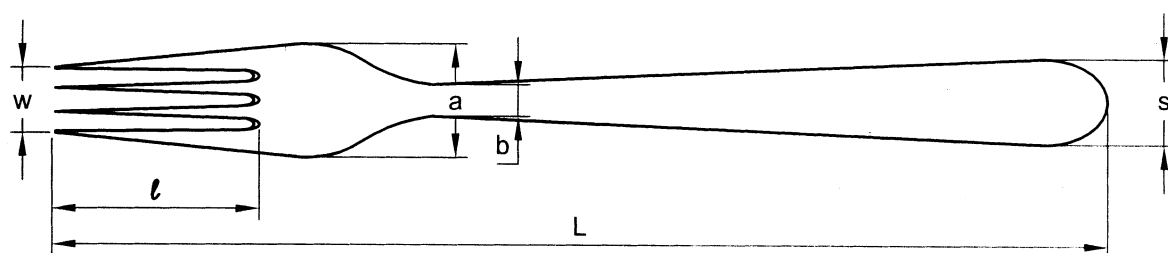
<i>Dimensions (see Fig. 1A)</i>	<i>Tolerance, mm</i>
<i>L</i>	+ 3.0 – 0.0
<i>l</i>	+ 1.50 – 0.0
<i>a</i>	+ 1.50 – 0.0
<i>b</i>	+ 1.50 – 0.0
<i>s</i>	+ 0.80 – 0.0
<i>w</i>	+ 1.50 – 0.0

5 MANUFACTURE

5.1 The forks with solid or pressed handles shall be made in one piece.



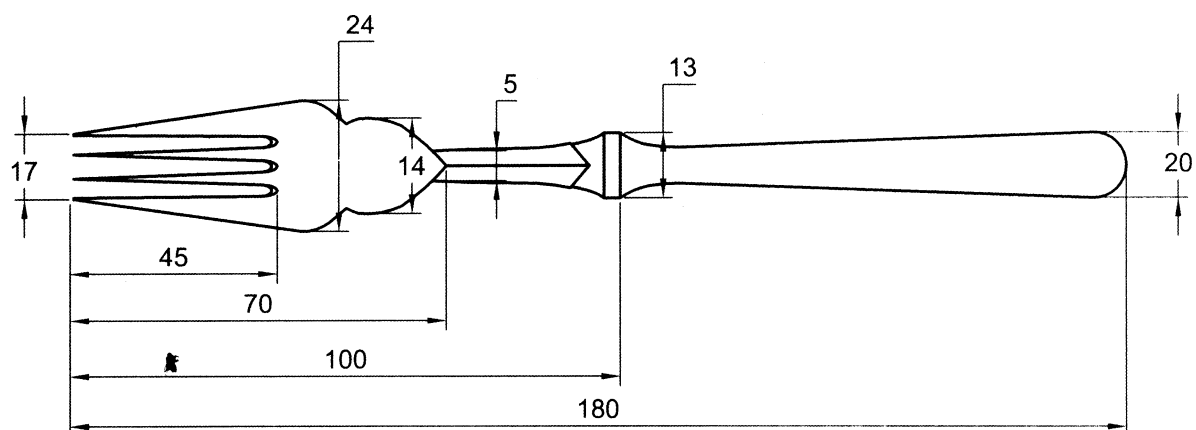
1A Table Fork/Serving Fork and Dessert Fork Solid Handle



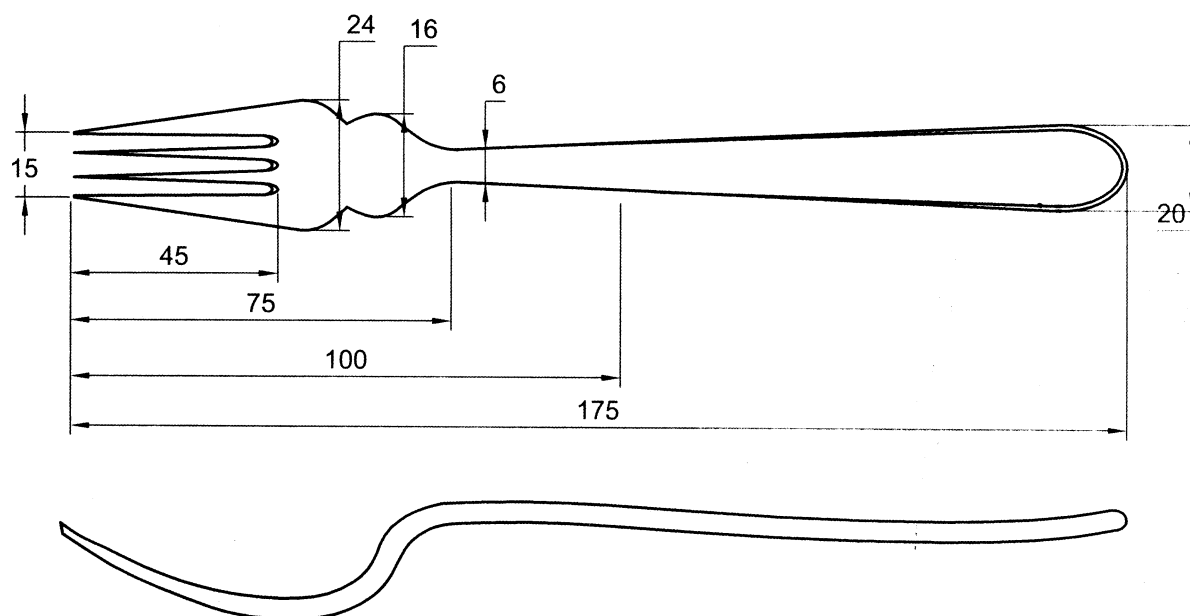
1B Table Fork/Serving Fork and Dessert Fork Pressed Handle

Name of the Fork	L	l	a	b	s	w
Table Fork/Serving Fork	200	50	25	5	20	18
Dessert Fork	175	45	22	4	20	15

All dimensions in millimetres.
FIG. 1 TABLE/SERVING AND DESSERT FORK



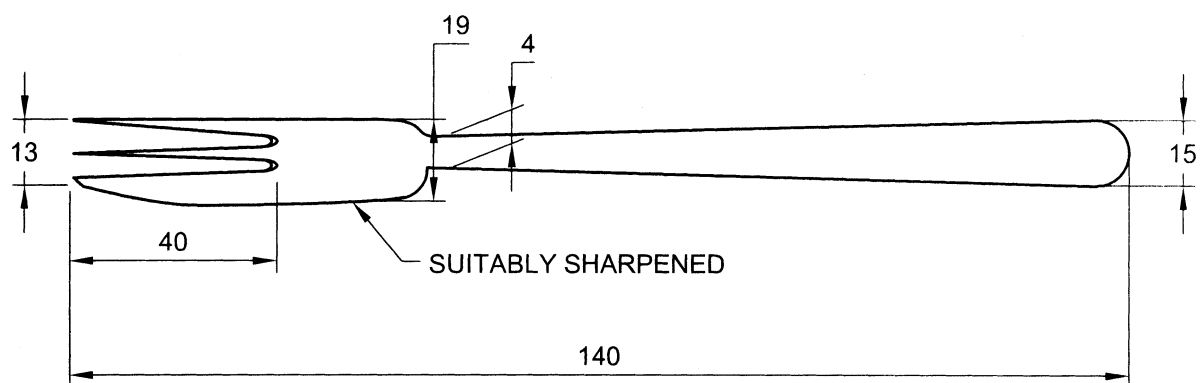
2A Fish Fork, Solid Handle



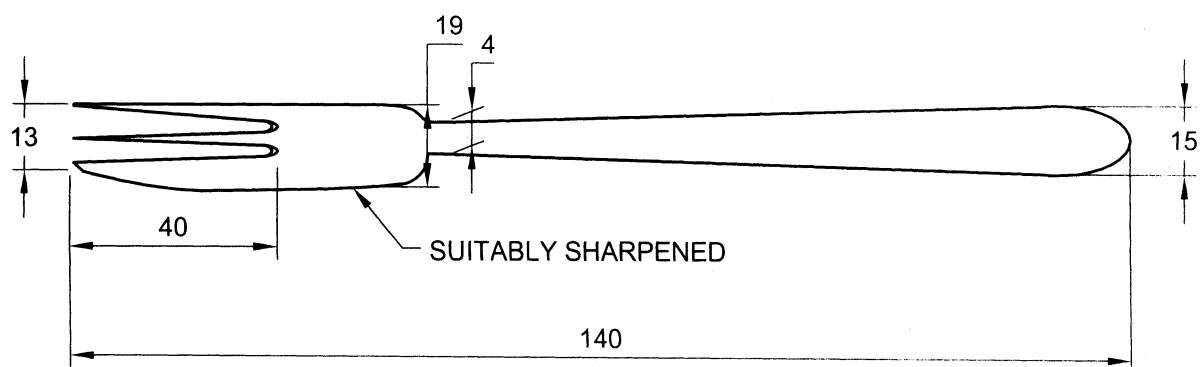
2B Fish Fork, Pressed Handle

All dimensions in millimetres.

FIG. 2 FISH FORK



3A Pastry Fork, Solid Handle



3B Pastry Fork, Pressed Handle

All dimensions in millimetres.

FIG. 3 PASTRY FORK

5.2 The forks with hollow handles shall have the prongs forged the tangs well drawn. The scales shall fit closely to the tang and shall be finished flush and smooth. The joints shall be properly silver-soldered in case of nickel silver hollow handles and welded in case of stainless steel hollow handles.

5.3 Where the plastics handles, are cast, they shall be soundly moulded with the tang in position. The tang shall be properly shaped and grooved. The end of the tangs shall be properly shaped and grooved. The end of the tangs shall be at least 15 mm away from the free

end. When plastics handles are fitted, the length of the tang shall be at least 65 mm to ensure rigid fixing.

6 WORKMANSHIP AND FINISH

6.1 Workmanship

The forks shall be free from burrs, seams, cracks or other manufacturing defects. All edges shall be well rounded or chamfered. The prongs shall be evenly tapered to the point. The prongs shall be suitably and evenly flattened or pointed at the tip of the prongs.

The handle of the fork and the cup of the fork containing the prongs shall be in good alignment.

6.2 Finish

6.2.1 The finishing of the fork shall be mirror all over.

6.2.2 The nickel silver forks are made as per 3.2. Nickel is plated on the brass up to 15 microns thickness which acts as bonding with parent metal brass and the silver. Silver is plated on the nickel base which gives better bonding effect. Plating thickness of the silver shall be minimum 40 micron. Purity of silver shall not be less than 99.0 percent. Effective anti-tarnishing process shall be used after silver plating to avoid oxidation of silver used for better life or the plating shall conform to IS 1067.

7 TESTS

7.1 Staining Test

The surface of fork shall be thoroughly washed with hot soapy water. Thoroughly rinse and then degrease the test specimen in acetone or methyleted spirit, then wiped with soft cloth. The fork, when dipped for 16 h in each of the following solutions, shall not show any sign of staining after removal from each solution at the end of above period:

- a) Ten grams of glacial acetic acid (99 percent) conforming to IS 695 dissolved in distilled water conforming to IS 1070 to make 100 ml, and
- b) Five grams of pure sodium chloride conforming to IS 4408 dissolved in distilled water to make 100 ml.

7.2 Bending Test

The fork shall be held rigidly from the extreme end of the handle/shank and supported in the middle of the overall length in such a way that it is approximately horizontal. A load of 1 kg in case of pastry fork and load of 1.5 kg in case of table/serving, fish and dessert forks shall then be applied at the extreme end of the prongs for 2 min and then removed. The permanent deflection shall be measured after removal of the load. It shall not exceed 8 mm.

7.3 Test for Forks with Hollow Handle

Hollow handles after fitting shall be immersed for 30 s in clean air-free water maintained at 80°C. They shall not show any expulsion of air bubbles.

7.4 Tests for Forks with Plastic Handles

7.4.1 Boiling

The fork shall be immersed for one hour in a boiling 5 percent soap solution, then rinsed immediately in

water at 15°C to 20°C and then dried for an hour in an oven maintained at 60°C. This procedure shall be repeated four times. On completion of test, the handle shall not show any sign of cracking, chipping or discoloring of the plastics and the tang shall neither become loose nor there be any damage.

7.4.2 Impact

This test shall be conducted after the boiling test. The fork shall be held with the handle facing downwards and dropped from a height of 1.2 m on to a concrete floor or a flat stone five times in succession. The handle shall not show any sign of cracking, breaking or chipping of the plastics and tang shall neither become loose nor shall there be any damage.

7.4.3 Staining

7.4.3.1 The plastics handle shall be cut into three pieces and each piece shall be immersed in one of the following solutions maintained at room temperature:

- a) Sodium chloride solution, 10 percent (w/v);
- b) Acetic acid solution, 5 percent (v/v); and
- c) Sodium carbonate solution, 2 percent (w/v).

7.4.3.2 Each piece shall be taken out after 24 h, rinsed with tap water and wiped with a dry cloth. It shall then be examined and immersed again in the same solution. This process shall be repeated seven times. During and at the end of seven days test there shall be no perceptible change in the appearance of the plastic material.

8 SAMPLING

The number of forks to be selected from a lot for ascertaining conformity to this standard shall be as agreed to between the manufacturer and the purchaser. A suitable sampling scheme and criteria for conformity for forks is given in Table 1.

8.1 Lot

In any consignment, all the forks of the same type of handle, shape and size, manufactured from the same material under relatively similar conditions of manufacture shall be grouped together to constitute a lot.

8.2 For ascertaining the conformity to the requirements of this standard the test shall be conducted separately for each lot.

8.3 The number of forks to be selected from a lot for ascertaining conformity to the requirements of this standard shall be according to Table 1. The forks in the sample shall be selected at random from the lot. If the forks are packed in cartons, as a first step at least 25 percent of the cartons, shall be selected at random and then from

Table 1 Sampling Size and Criteria for Conformity
(Clauses 8, 8.3, 8.4 and 8.5)

Sl No.	No. of Forks in a Lot	For Clause No. 4 and 6.1		For Clause No. 6.2 and 7	
		Sample Size	Acceptance Number	Sub-Sample Size	Acceptance Number
(1)	(2)	(3)	(4)	(5)	(6)
i)	Up to 50	5	0	2	0
ii)	51 to 150	13	1	4	0
iii)	151 to 500	32	3	6	0
iv)	501 to 1 000	50	5	8	0
v)	1 001 to 3 000	80	7	12	1
vi)	3 001 to 10 000	125	10	16	1
vii)	10 001 and above	200	14	20	2

each selected carton, equal number of forks be taken out at random so as to make the required sample size.

8.4 The fork selected at random according to **8.3** shall be examined for the requirements of **4** and **6.1**. A fork failing to satisfy any one or more of these requirements shall be regarded as defective. The lot shall be considered as conformity to the requirements of **4** and **6.1**, if the number of defectives forks in the sample does not exceed the number given in col 3 of Table 1.

8.5 If the lot conforms to the requirements of **8.4**, a sub-sample of size given in col 4 of Table 1 shall be taken from the forks selected as in **8.3**. Each of fork in the sub-sample shall be tested for the requirements given in **6.2** and **7**. A fork not satisfying any one or more of the requirements given in **6.2** and **7** shall be regarded as defective. The sample shall be considered to conform to the requirements given in **6.2** and **7** if number of defectives in sub-sample does not exceed the numbers given in col 5 of Table 1.

9 MARKING

9.1 Each fork shall be legibly marked with the following on underside of the handle preferably by engraving or etching:

- Type of fork;
- Material of fork;
- Material grade;

- Type of handle;
- Manufacturer's name, initials or registered trade-mark;
- Made in India; and
- Batch No./Date of manufacturing if desired by the purchaser.

Example: Table / SS / 304 / Plastic / XX Pvt Ltd / Made in India / YYYY

9.2 BIS Certification Marking

9.2.1 Each fork may also be marked with the Standard Mark.

9.2.2 The use of the Standard Mark is governed by the provision of the *Bureau of Indian Standards Act, 1986* and the Rules and Regulations made thereunder. The details of conditions under which the license for the use of the Standard Mark may be granted to manufacturers or producers, may be obtained from the Bureau of Indian Standards.

10 PACKING

The forks shall be wrapped in soft tissue paper or wax paper or suitable polythene bags and packed in cartons. The number of forks to be packed in one carton shall be at the discretion of the manufacturers. The cartons shall bear the type and number of forks packed, the name of the manufacturer, batch number and the country of the manufacturer.

ANNEX A*(Foreword)***COMMITTEE COMPOSITION****Utensils Cutlery and Domestic Hardware Sectional Committee, MED 33**

<i>Organization</i>	<i>Representative(s)</i>
MSME, New Delhi	SHRI NIRANJAN NAIK (Chairman) SHRI K. L. RAO (<i>Alternate</i>)
Anna Aluminium Company Private Limited, Kizhakkambalam	SHRI K. VIJAYA PRASAD SHRI K. C. PILLAI (<i>Alternate</i>)
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Central Public Works Department, New Delhi	SHRI SURINDER KUMAR
D.P. Garg and Company Private Limited, Noida	SHRI SANDIP GARG SHRI S. M. GARG (<i>Alternate</i>)
Federation of Consumer Organization, Thiruchirapalli	SHRIMATI S. SHAKUNTALA
Federation of Hardware Manufacturing and Traders Welfare Association, Gurgaon	SHRI AJAY BHASIN SHRI RAJESH BANSAL (<i>Alternate</i>)
Gangadharam Appliances Ltd, Chennai	SHRI V. M. KUMARESAN SHRI K. SIVASUBRAMANIAN (<i>Alternate</i>)
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Hawkins Cookers Limited, Thane	SHRI K. K. KAUL SHRI S. T. SHENAI (<i>Alternate</i>)
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J. K. Metal Industries, Jagadhri	SHRI SATISH GARG SHRI BHARAT GARG (<i>Alternate</i>)
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MSME Testing Centre, New Delhi	SHRI S. K. SRIVASTAVA SHRI A. K. MUKHERJEE (<i>Alternate</i>)
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BIS Directorate General	SHRI T. V. SINGH, Scientist 'F' & Head (MED) [Representing Director General (<i>Ex-officio</i>)]

Member Secretary
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Scientist 'B' (MED), BIS

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This Indian Standard has been developed from Doc No.: MED 33 (1107).

Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

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